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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/774,888

02/01/2001

Jun Koyama

740756-2255

3194

22204

7590

04/13/2005

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EXAMINER

WEISS, HOWARD

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 04/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	09/774,888		KOYAMA ET AL.	
	Examiner		Art Unit	
	Howard Weiss		2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,9,77-84,87-90 and 93-102 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,77-84,87-90 and 93-102 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Attorney's Docket Number: 740756-2255

Filing Date: 2/1/01

Continuing Data: RCE established 3/27/03, 8/19/04

Claimed Foreign Priority Date: 2/1/00 (JPX)

Applicant(s): Koyama et al. (Kato)

Examiner: Howard Weiss

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1 and 102 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. (JP 11-154714 and the Derwent Translation of this document) and Akbar (U.S. Patent No. 5,656,845).

Yamazaki et al. show most aspects of the instant invention (e.g. Figures 1, 2 and 8) including:

- a memory cell array with memory cells formed in a matrix

- each cell containing a memory thin film transistor (MTFT) **Tr1** and a switching thin film transistor (STFT) **Tr2** said transistors integrally formed (Paragraph 0011 of Derwent)
- said MTFT including:
 - a first semiconductor active layer **202** formed on an insulating substrate **201** and having a first thickness **d1**
 - a first insulating film **211**, a floating gate electrode **213**, a second insulating film **214** and a control gate electrode **215**
 - a wiring **825** for connecting the control gate to a first single line **809**
- said STFT including:
 - a second semiconductor active layer **206** formed on an insulating substrate **201** and having a second thickness **d2**
 - a gate insulating layer **212** and a gate electrode **217**
 - a second signal line **810** connected to said gate electrode
- where in **d1** is thinner (i.e. smaller) than **d2** and within the ranges claimed (Paragraphs 0058 and 0059)
- the floating gate comprising tantalum or tantalum and the second insulating film made of a thermal oxide of said floating gate (i.e. tantalum oxide; Paragraphs 0149 to 0153)

Yamazaki et al. does not show the first and second semiconductor layer in a common semiconductor island and the channel formed in a self-aligning manner using the floating gate as a mask. Akbar teaches (e.g. Figures 1 and 8 to 10) to form first and second semiconductor layers in a common semiconductor island (i.e. layer **122** and to form the channel **157** in a self-aligned manner using the floating gate **140** as a mask (Column 7 Lines 25 to 37) to provide memory cells with improved performance and reliability (Column 2 Lines 19 to 22). It would have been obvious to a person of ordinary skill in the art at the time of invention to form first and second semiconductor layers in a common semiconductor island and to form the channel in a self-aligned manner using the floating gate as a mask as taught by Akbar in the

device of Yamazaki et al. to provide memory cells with improved performance and reliability.

3. Claims 77 to 84, 87 to 90 and 93 to 96 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. and Akbar, as applied to Claim 1 above, and further in view of Koyama (U.S. Patent No. 5,793,344).

Yamazaki et al. and Akbar show most aspects of the instant invention (Paragraph 2) except for the semiconductor device comprising a substrate, a non-volatile memory over the substrate, a pixel portion over the substrate, a source wiring driver circuit for driving the pixel portion over the substrate, a gate wiring driver circuit for driving the pixel portion over the substrate, a correction circuit over the substrate and a memory controller circuit over the substrate for controlling the non-volatile memory circuit all part of an LCD of a video camera. Koyama teach (Paragraph 3) to use the memory device with the listed devices to produce a high quality display device (Column 7 Lines 55 to 61). It would have been obvious to a person of ordinary skill in the art at the time of invention to use the memory device of Yamazaki et al. and Akbar with the listed devices of Koyama to produce a high quality display device.

4. Claims 97 to 101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., Akbar and Koyama, as applied to Claims 1, 77, 78, 79 and 80 above, and further in view of Fukaya et al. (U.S. Patent No. 5,627,088).

Yamazaki et al., Akbar and Koyama show most aspects of the instant invention (Paragraph 3) except for the use of amorphous silicon germanium. Fukaya et al. teach (e.g. Column 11 Lines 8 to 10) to use amorphous silicon germanium as a semiconductor layer in an LCD device to provide an alternative semiconductor material. It would have been obvious to a person of ordinary skill in the art at the time of invention to use amorphous silicon germanium as a semiconductor layer in

an LCD device as taught by Fukaya et al. in the device of Yamazaki et al., Akbar and Koyama to provide an alternative semiconductor material.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1 and 75 to 96 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1 to 12 of U.S. Patent No. 6,472,684 in view of Akbar, Yamazaki et al. and Koyama. U.S. Patent No. 6,472,684 claim most aspects of the instant except for the first and second semiconductor layer a common semiconductor island, the floating gate comprising tantalum, the second insulating film comprising a thermal oxide of said floating gate and being part of the listed elements (i.e. a substrate, a non-volatile memory over the substrate, a pixel portion over the substrate, a source wiring driver circuit for driving the pixel portion over the substrate, a gate wiring driver circuit for driving the pixel portion over the substrate, a correction circuit over the substrate and a memory controller circuit over the substrate for controlling the non-volatile memory circuit all part of an LCD of a video camera).

Akbar teaches (e.g. Figures 1, 9 and 10) to form first and second semiconductor layers in a continuous layer **122** to provide memory cells with improved performance and reliability (Column 2 Lines 19 to 22). Yamazaki et al. teach (e.g. Paragraphs 0149 to 0153)) to use tantalum in the floating gate and a thermal oxide of the floating gate as the second insulating film to improve the electrical characteristics of the device. Koyama teach (Paragraph 2) to use the memory device with the listed devices to produce a high quality display device (Column 7 Lines 55 to 61). It would have been obvious to a person of ordinary skill in the art at the time of invention to form first and second semiconductor layers in a continuous layer as taught by Akbar, to use tantalum in the floating gate and a thermal oxide of the floating gate as the second insulating film as taught by Yamazaki et al. and to use the memory device with the listed devices as taught by Koyama in the device claimed in U.S. Patent No. 6,472,684 to provide a device with improved performance and reliability.

7. Claims 1 and 75 to 96 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1 to 30 of U.S. Patent No. 6,509,602 in view of Akbar, Yamazaki et al. and Koyama. U.S. Patent No. 6,509,602 claim most aspects of the instant except for the first and second semiconductor layer a common semiconductor island, the floating gate comprising tantalum, the second insulating film comprising a thermal oxide of said floating gate and being part of the listed elements (i.e. a substrate, a non-volatile memory over the substrate, a pixel portion over the substrate, a source wiring driver circuit for driving the pixel portion over the substrate, a gate wiring driver circuit for driving the pixel portion over the substrate, a correction circuit over the substrate and a memory controller circuit over the substrate for controlling the non-volatile memory circuit all part of an LCD of a video camera).

Akbar teaches (e.g. Figures 1, 9 and 10) to form first and second semiconductor layers in a continuous layer **122** to provide memory cells with improved performance and reliability (Column 2 Lines 19 to 22). Yamazaki et al. teach (e.g. Paragraphs

0149 to 0153)) to use tantalum in the floating gate and a thermal oxide of the floating gate as the second insulating film to improve the electrical characteristics of the device. Koyama teaches (Paragraph 2) to use the memory device with the listed devices to produce a high quality display device (Column 7 Lines 55 to 61). It would have been obvious to a person of ordinary skill in the art at the time of invention to form first and second semiconductor layers in a continuous layer as taught by Akbar, to use tantalum in the floating gate and a thermal oxide of the floating gate as the second insulating film as taught by Yamazaki et al. and to use the memory device with the listed devices as taught by Koyama in the device claimed in U.S. Patent No. 6,509,602 to provide a device with improved performance and reliability.

Response to Arguments

8. Applicant's arguments filed 1/24/05 have been fully considered but they are not persuasive. In reference to the range of claims rejected, there were a number of typos which have been corrected in the present office action. In reference to the channel formed in a self-aligned manner using the floating gate as a mask, Akbar clearly teaches these limitations (e.g. Column 7 Lines 25 to 37). In view of these reasons and those set forth in the present office action, the rejections of the stated claims stand.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and

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any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(703) 872-9306**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard Weiss at **(571) 272-1720** and between the hours of 7:00 AM to 3:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via Howard.Weiss@uspto.gov. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy, can be reached on **(571) 272-1705**.

12. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/326, 347; 365/ 185.05	thru 4/12/05
Other Documentation: none	
Electronic Database(s): EAST	thru 4/12/05



Howard Weiss
Primary Patent Examiner
Art Unit 2814

HW/hw
12 April 2005